

This listing of claims will replace the prior version in the application.

Claims

1. (Currently amended) Process for preparing a mercaptan ~~from comprising contacting~~ an olefin and hydrogen sulphide, ~~characterized in that it is carried out in the presence of hydrogen and a catalyst composition comprising a strong acid and at least one metal belonging to selected from group VIII of the Periodic Table.~~

2. (Currently amended) Process according to ~~Claim~~ claim 1, ~~characterized in that wherein~~ the strong acid is selected from the group consisting of:

- (a) one or more heteropolyacids selected from:
 - (i) a compound of formula:] the group $H_3PW_{12}O_{40} \cdot nH_2O$, $H_4SiW_{12}O_{40} \cdot nH_2O$ or $H_6P_2W_{18}O_{62} \cdot nH_2O$, in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30, ~~preferably between 6 and 20;~~
 - ~~-(ii) a potassium, rubidium, caesium or ammonium salt~~ salts thereof ~~of at least one compound (i), or a mixture and mixtures~~ of such salts;
- (b) a sulphated zirconium oxide,
- (c) a tungstic zirconium oxide,
- (d) a zeolite, and
- (e) a cationic resin.

3. (Currently amended) Process according to ~~Claim 2~~ claim 1, ~~wherein characterized in that~~ the strong acid is selected from the group potassium, rubidium, caesium or ammonium salts or a mixture of such salts of $H_3PW_{12}O_{40} \cdot nH_2O$, $H_4SiW_{12}O_{40} \cdot nH_2O$ or $H_6P_2W_{18}O_{62} \cdot nH_2O$, in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30, a sulphated zirconium oxide, a tungstic zirconium oxide, a zeolite, and a cationic resin. ~~a heteropolyaci (ii), or one of the compounds (b), (c), (d) or (e).~~

4. (Currently amended) Process according to ~~Claim 3~~ claim 1, ~~characterized in that wherein~~ the catalyst composition comprises:

- from 90% to 99.9%, ~~preferably from 98.5% to 99.5%~~, by weight of strong acid, and

- from 0.01% to 10%, ~~preferably from 0.05% to 1.5%~~, by weight of at least one metal from group VIII.

5. (Currently amended) Process according to ~~Claim 2~~claim 1, ~~characterized in that~~ wherein the strong acid is a heteropolyacid ~~(i)~~ selected from the group $H_3PW_{12}O_{40} \cdot nH_2O$, $H_4SiW_{12}O_{40} \cdot nH_2O$ or $H_6P_2W_{18}O_{62} \cdot nH_2O$, in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30.

6. (Currently amended) Process according to ~~Claim~~claim 5, ~~characterized in that~~ wherein the catalyst composition comprises:

- from 10% to 60%, ~~preferably from 25 to 50%~~, by weight of strong acid,

- from 0.01% to 10%, ~~preferably from 0.1% to 2%~~, by weight of at least one metal from group VIII, and

- from 30% to 80%, ~~preferably from 48% to 75%~~, by weight of a support selected from silica SiO_2 , alumina Al_2O_3 , titanium dioxide TiO_2 , zirconium oxide ZrO_2 , and activated carbon.

7. (Currently amended) Process according to ~~either of Claims 5 and~~ claim 6, ~~characterized in that~~ wherein the strong acid is 12-phosphotungstic acid, ~~preferably impregnated on silica.~~

8. (Currently amended) Process according to one of ~~Claims 1 to 7~~claim 1, ~~characterized in that~~ wherein the at least one metal is selected from iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, and platinum.

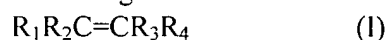
9. (Currently amended) Process according to ~~Claims 1 to 8~~claim 1, ~~characterized in that~~ wherein the at least one metal is selected from palladium, ruthenium, and platinum.

10. (Currently amended) Process according to one of ~~Claims 1 and 9~~claim 1, ~~characterized in that~~ wherein the at least one metal is platinum.

11. (Currently amended) Process according to ~~one of Claims 1 and 5 to 10~~, characterized ~~in that claim 1 wherein~~ the catalyst composition comprises approximately 40% by weight of 12-phosphotungstic acid, 1% of platinum and 59% of silica.

12. (Currently amended) Process according to ~~one of Claims 1 to 11~~, characterized in that claim 1, wherein the hydrogen is introduced in an amount corresponding to a molar H₂S/H₂ ratio of between 0.05 and 200, ~~preferably between 0.1 and 100~~.

13. (Currently amended) Process according to ~~one of Claims 1 to 12~~, characterized in that claim 1, wherein the olefin ~~used~~ has the general formula:



in which R₁, R₂, R₃, R₄, which are identical or different, represent a hydrogen atom or a linear or branched alkyl radical of 1 to 20 carbon atoms, ~~preferably 1 to 12 carbon atoms~~.

14. (Currently amended) Process according to ~~one of Claims 1 to 13~~, characterized in that claim 1, wherein the olefin used is ethylene.

15. (Currently amended) Process according to ~~one of Claims 1 to 14~~, characterized in that claim 1, wherein the hydrogen sulphide is introduced in an amount corresponding to a molar H₂S/olefin ratio of between 1 and 100, ~~preferably between 2 and 30, more preferably between 2 and 12~~.

16. (New) Process according to claim 1, wherein the catalyst composition comprises:

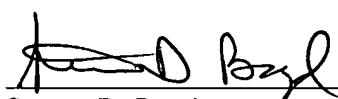
- from 98.5% to 99.9%, by weight of strong acid, and
- from 0.05% to 1.5%, by weight of at least one metal from group VIII.

17. (New) Process according to claim 5, wherein the catalyst composition comprises:

- from 25 to 50%, by weight of strong acid,
- from 0.1% to 2%, by weight of at least one metal from group VIII, and
- from 48% to 75%, by weight of a support selected from silica SiO₂, alumina Al₂O₃, titanium dioxide TiO₂, zirconium oxide ZrO₂, and activated carbon.

18. (New) Process according to claim 1, wherein the hydrogen is introduced in an amount corresponding to a molar H_2S/H_2 ratio of between 0.1 and 100.
19. (New) Process according to claim 1, wherein the hydrogen sulphide is introduced in an amount corresponding to a molar $H_2S/olefin$ ratio of between 2 and 30.
20. (New) Process according to claim 1, wherein the hydrogen sulphide is introduced in an amount corresponding to a molar $H_2S/olefin$ ratio of between 4 and 12.
21. (New) Process according to claim 1, wherein n is between 6 and 20.
22. (New) Process according to claim 7, wherein said 12-phosphotungstic acid is impregnated on silica.
23. (New) Process according to claim 13, wherein said linear or branched alkyl radical has 1 to 12 carbon atoms.

Respectfully submitted,



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